Fig.1

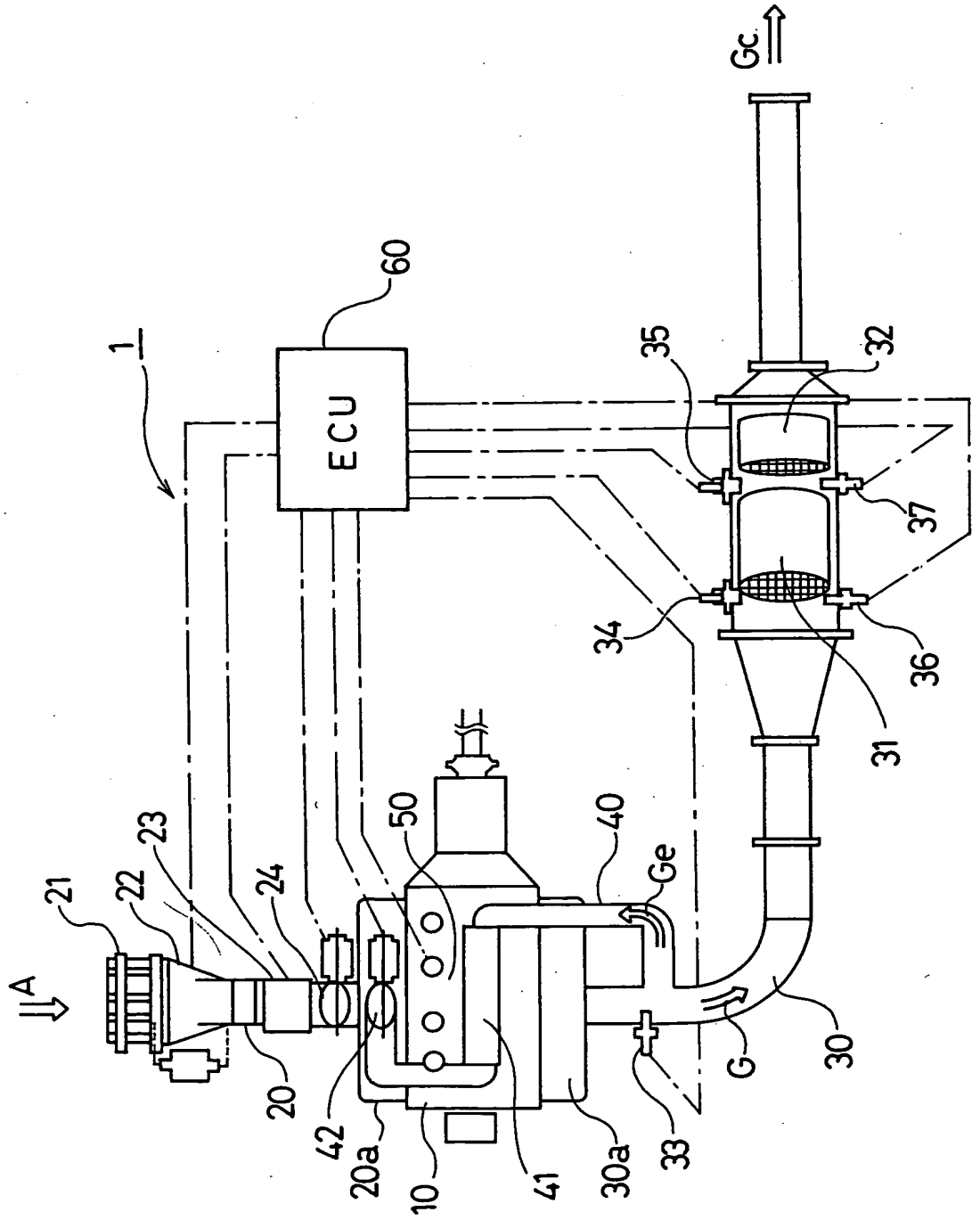

ECU
60
1
Gc
35
32
37
34
36
31
50
40
Ge
21
22
23
24
A
20
42
20a
10
41
30a
33
G
30

Fig.2

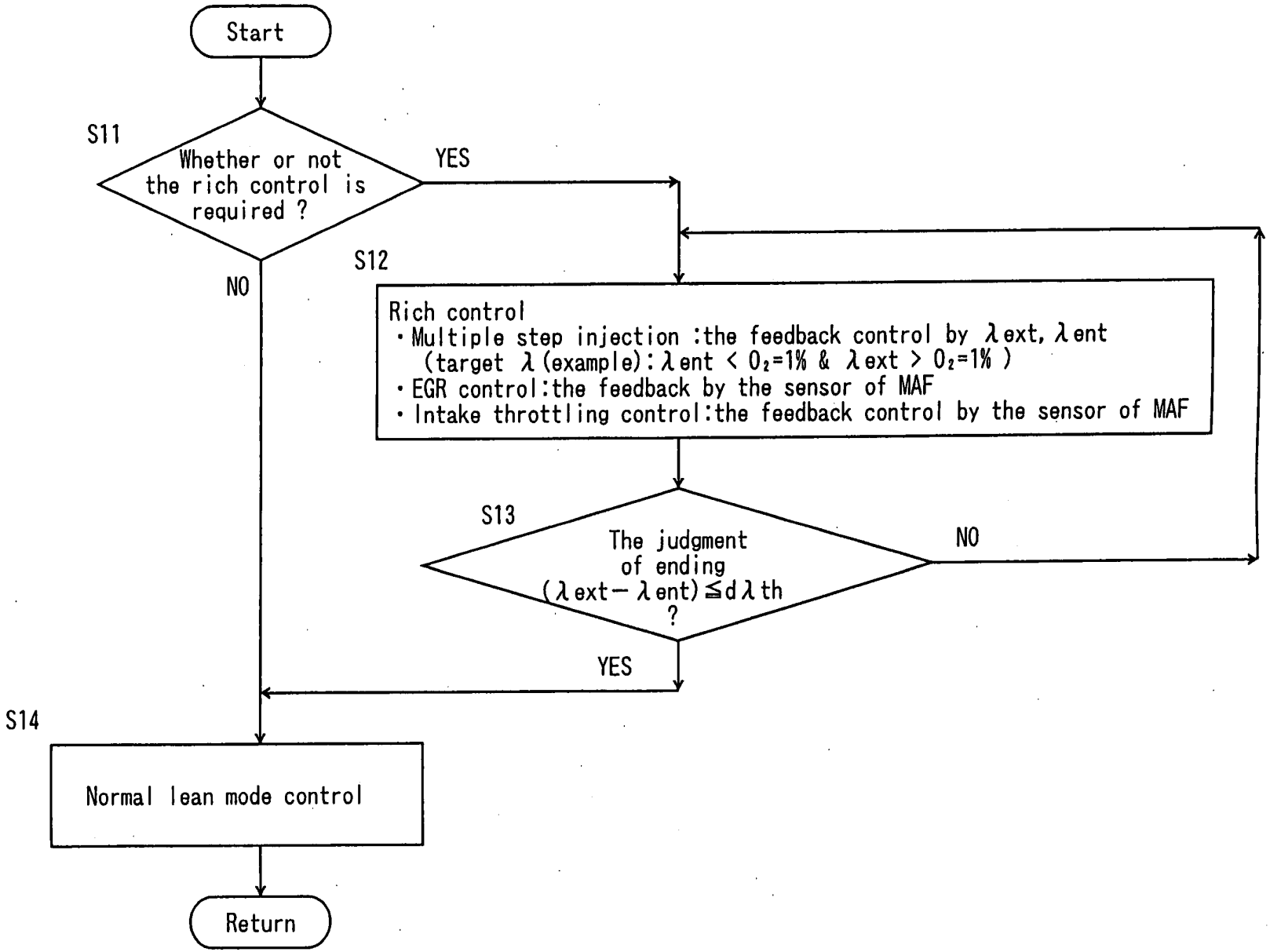

Start
S11
Whether or not the rich control is required ?
YES
NO
S12
Rich control
・Multiple step injection :the feedback control by λext, λent
(target λ(example): λent < O₂=1% & λext > O₂=1%)
・EGR control:the feedback by the sensor of MAF
・Intake throttling control:the feedback control by the sensor of MAF
S13
The judgment of ending (λext−λent)≦dλth ?
NO
YES
S14
Normal lean mode control
Return

Fig.3

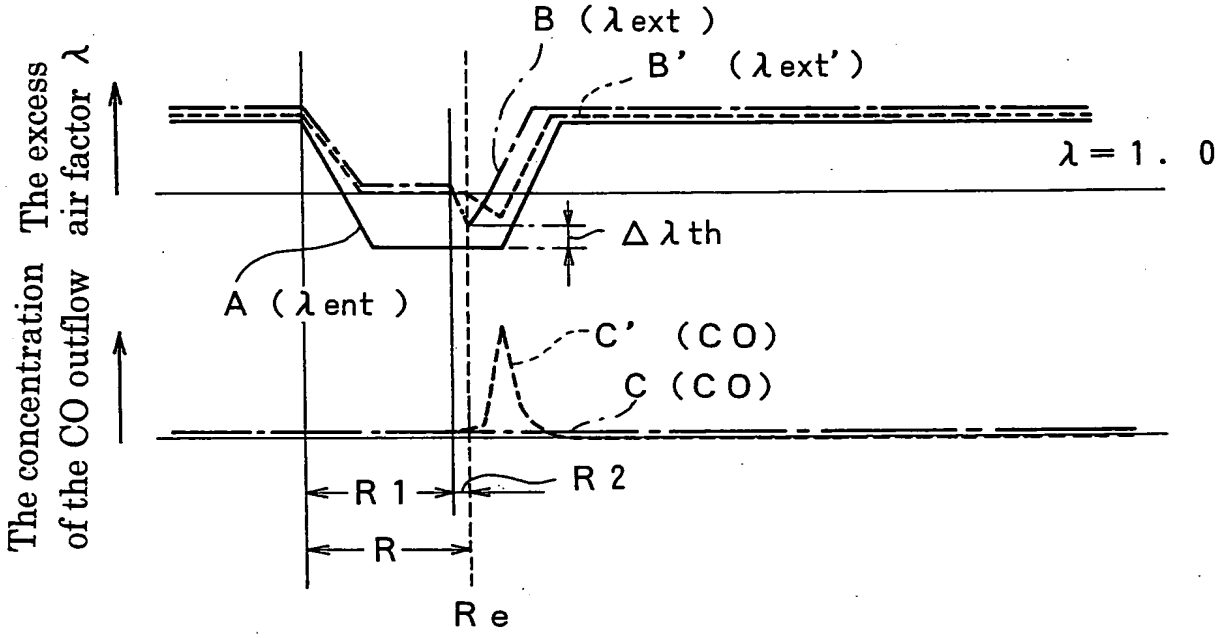

B (λext)
B' (λext')
λ = 1.0
Δλth
A (λent)
C' (CO)
C (CO)
R 1
R 2
R
Re
The excess air factor λ
The concentration of the CO outflow

Fig.4

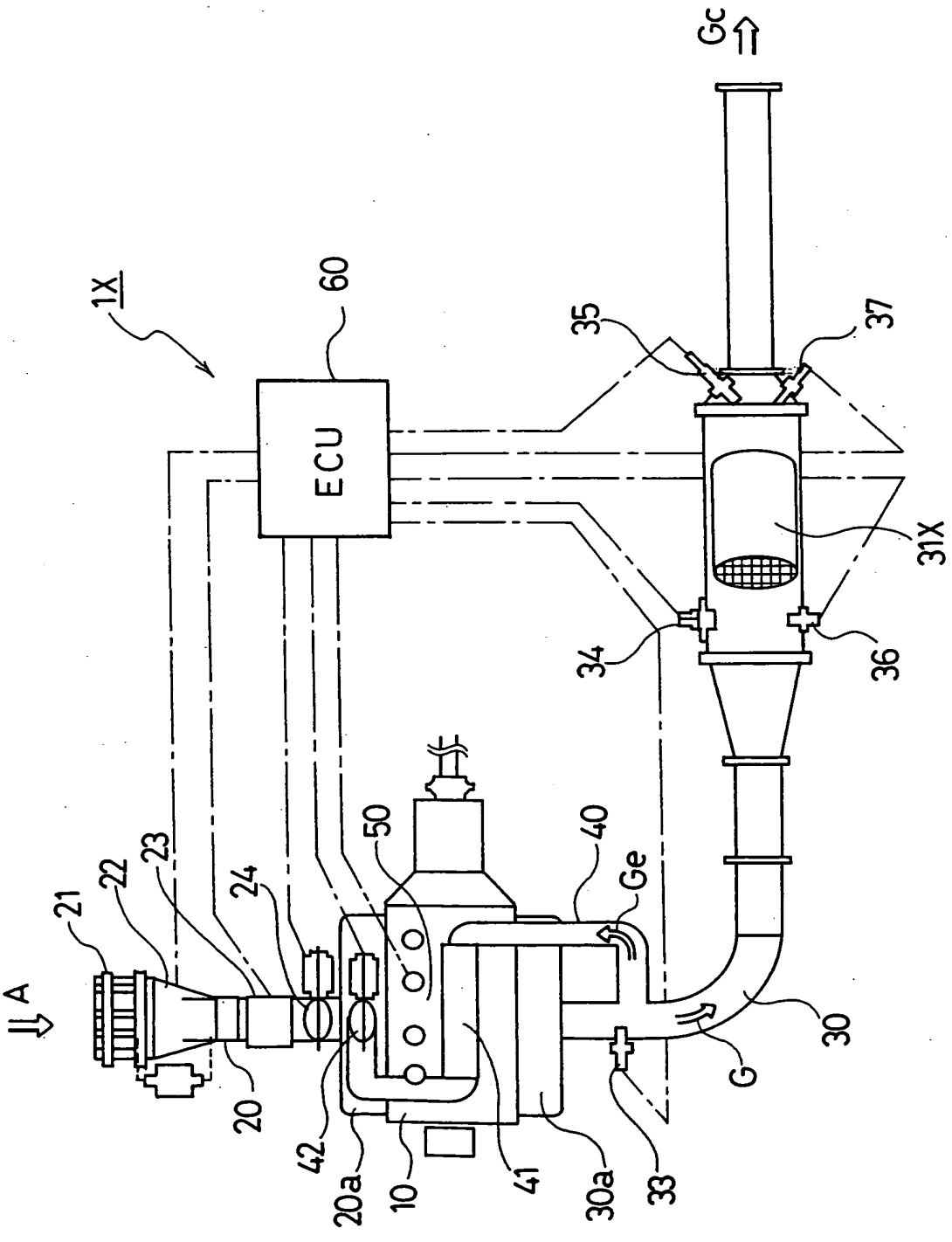

1X
60
ECU
35
37
Gc
31X
34
36
50
40
Ge
21
22
23
24
A
20
42
20a
10
41
30a
33
G
30

Fig.5

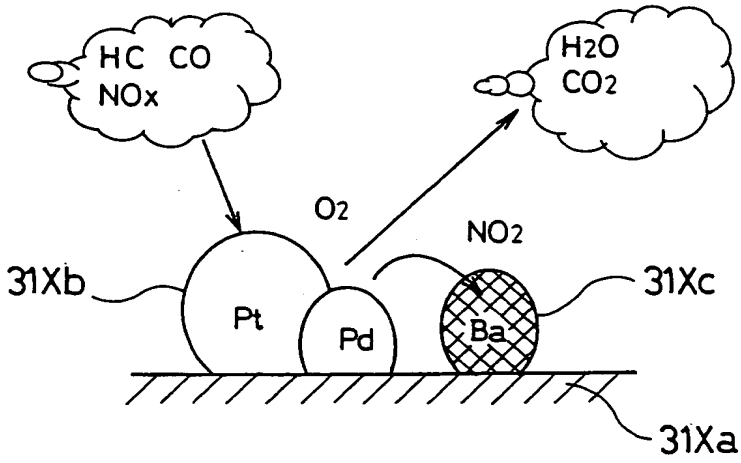


Fig.6

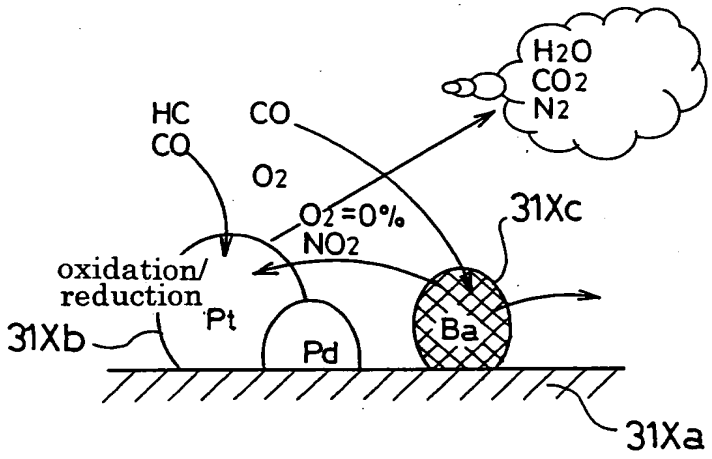


Fig.7

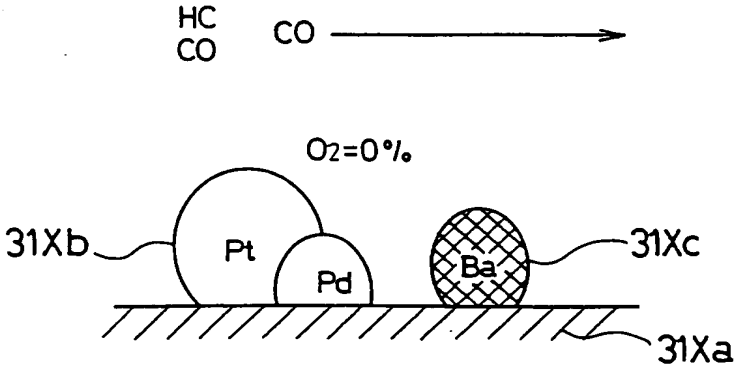


Fig.8

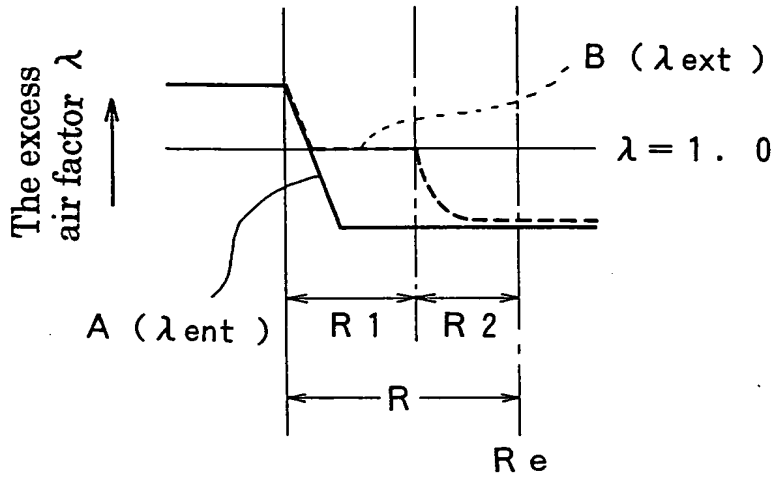
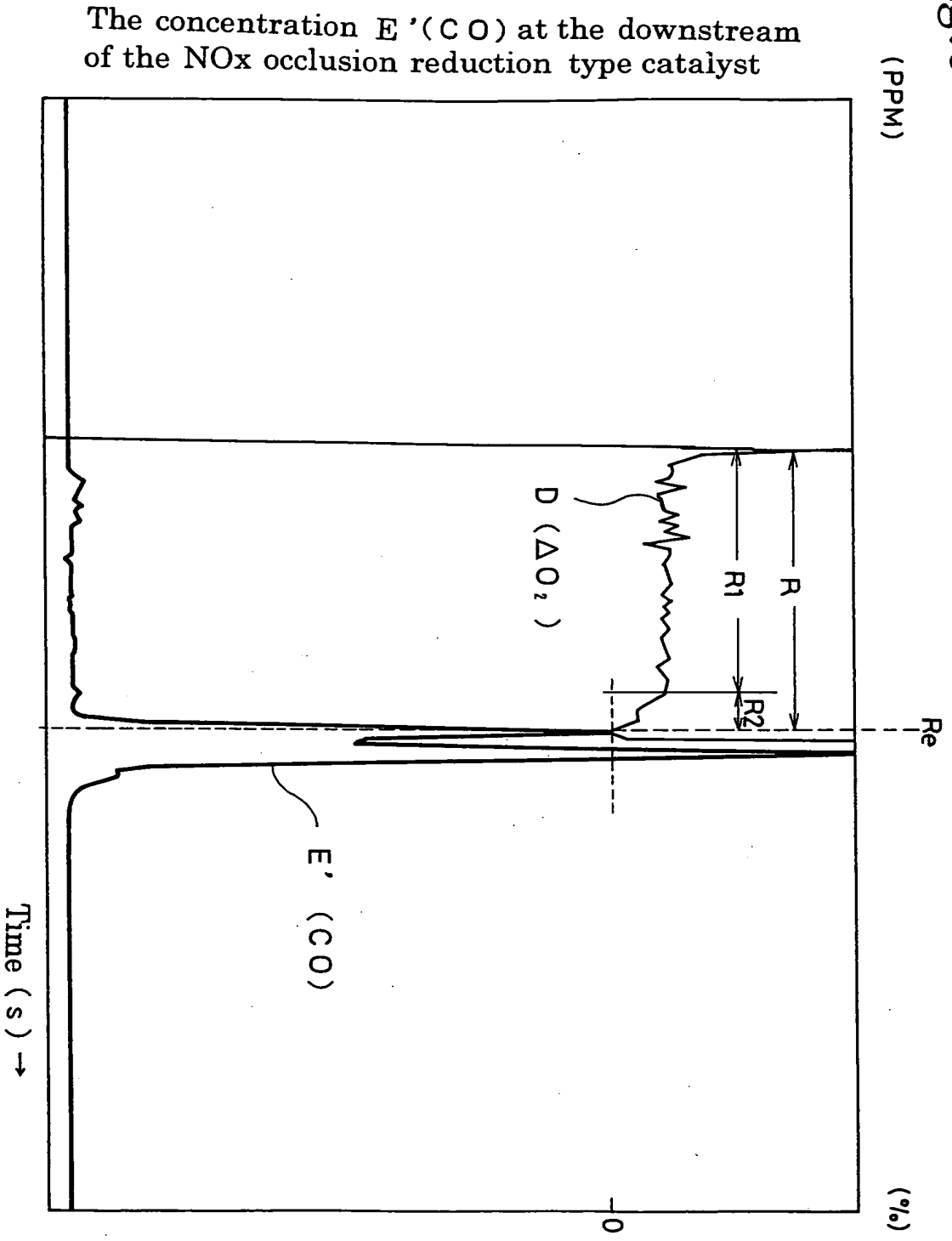
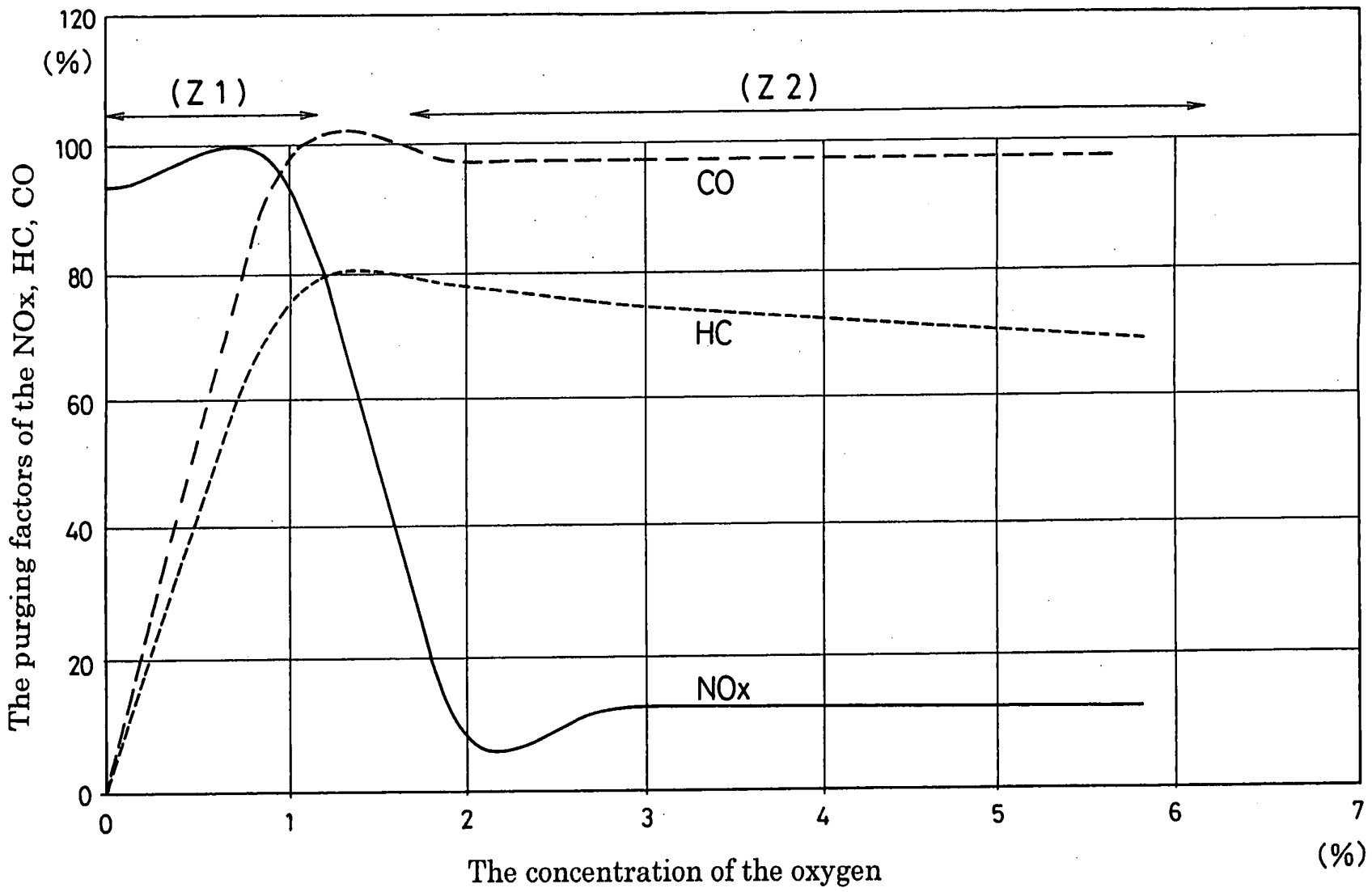


Fig.9



The difference D (ΔO_2) of the concentration between before and after the NOx occlusion reduction type catalyst

Fig.10


120
(%)
(Z 1)
(Z 2)
100
80
60
40
20
0
CO
HC
NOx
The purging factors of the NOx, HC, CO
0
1
2
3
4
5
6
7
(%)
The concentration of the oxygen